Introduction of 2013 T-CAP2 model

Panasonic 2013 T-CAP2 Model (Bi-Bloc 16kW)

Bi-Bloc models

HxWxD(mm): 1340X900X320

Tenv. spec

Shipment from 2013/Sep-

Power Supply	**3 Phase / 400V / 50Hz**
Heating Capacity (A7-W35)	**16.0kW**
Cooling Capacity (A35-W7)	**12.2kW**
EER	**2.56**
COP	**4.28**

Sales Point

Panasonic A2W Product Concept

High capacity improvement at low ambient & High efficiency

Panasonic original SCEB Cycle

1 SCEB Cycle(Sub-Cooler Eva Bypass Cycle)
Newly developed refrigeration cycle& New refrigerant flow control
High heating capacity even at low ambient!

Industry Top Class

2 High Efficiency Product
In combination with High efficient Inverter and HEX module.
Industry **top class COP !**

Class A pump

3 Install Class A pump
Industry top class energy-saving!

4 Adding many New function
Auto mode, Holiday mode, New deice control

T-CAP2 model concept and TENV SPEC

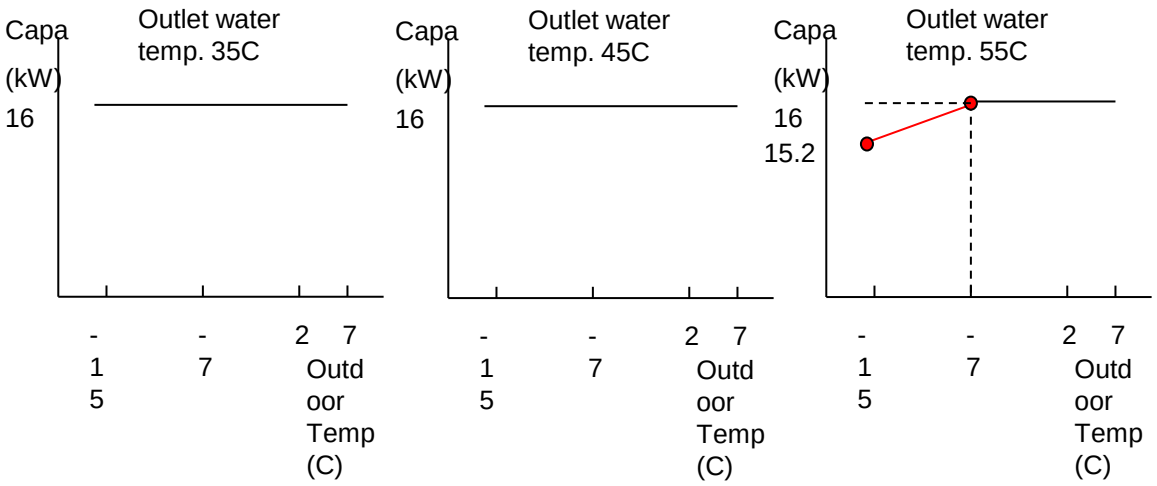
- Enhance larger capacity (16kW)
- More Energy saving (with Class A pump)

Adding new function

- Auto mode
- Holiday mode
- show Power consumption
- New deice control
- Concrete Dry mode (Only for installer setting)
- Lock cooling mode (Only for installer setting)
- Pump speed control level 1-7 (Only for installer setting)

Tenv. spec

Heating Capacity by different temp:



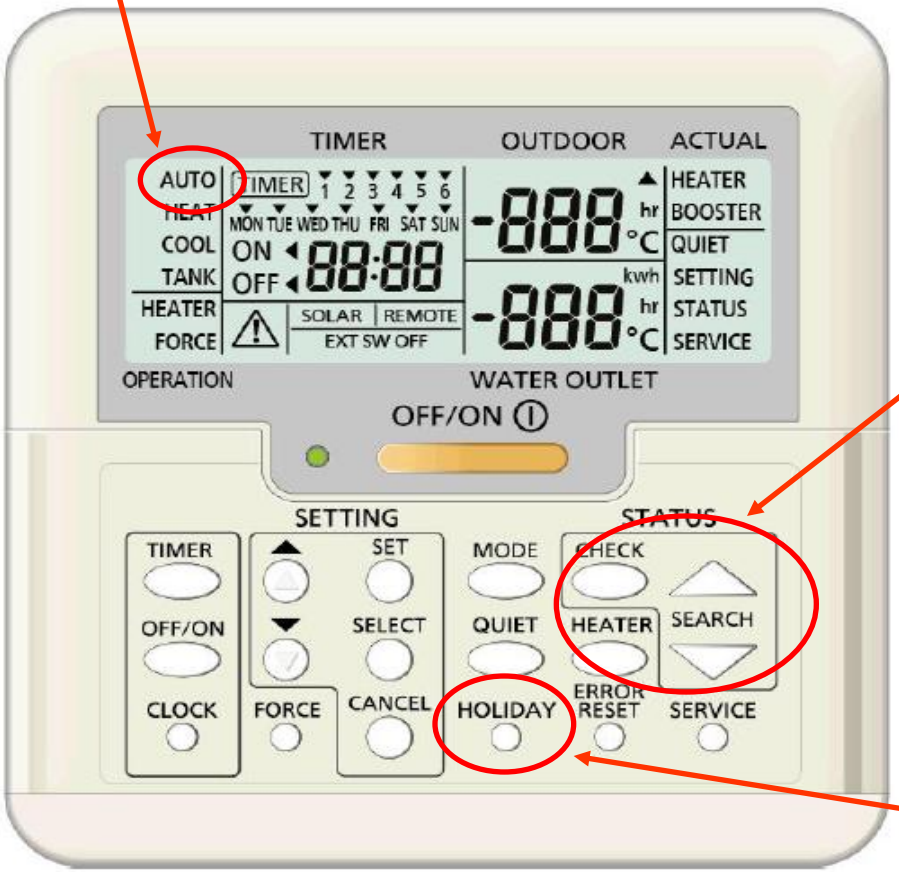
Heating Capacity and COP by different temp:

OD ambient	Water temp.		Panasonic T-CAP2
			16kW
7/6	30/35	Capacity (kW)	16.00
		COP	4.28
	40/45	Capacity (kW)	16.00
		COP	3.33
	47/55	Capacity (kW)	16.00
		COP	2.71
2/1	30/35	Capacity (kW)	16.00
		COP	3.07
	40/45	Capacity (kW)	16.00
		COP	2.54
	47/55	Capacity (kW)	16.00
		COP	2.13
-7/-8	30/35	Capacity (kW)	16.00
		COP	2.49
	40/45	Capacity (kW)	16.00
		COP	2.11
	47/55	Capacity (kW)	16.00
		COP	1.86
-15	30/35	Capacity (kW)	16.00
		COP	2.32
	40/45	Capacity (kW)	16.00
		COP	1.98
	47/55	Capacity (kW)	15.20
		COP	1.70

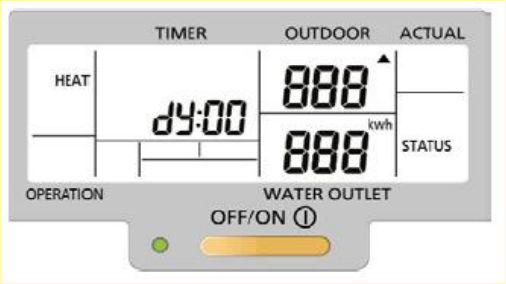
Tenv. spec

New function (For customer)

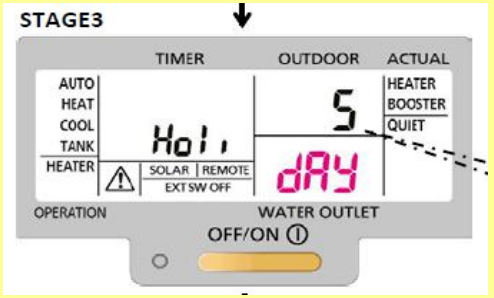
Auto mode for Heating and Cooling mode
【Aim】 Adding Auto mode
【How to】 Judge by temp ser in advance, switch automatically to determine the outside temp.



Show power consumption
【Aim】 Show power consumption
by each mode (heat ,cool,tank)
(To meet FranceRT2012 request
We can omit energy meter by this setting)
【How to 】



Holiday Mode
【Aim】 Adding Holiday mode when not at home for a period
【How to】



How to set HOLIDAY MODE

Entering Sequence, stages, mechanism & exit sequence

Normal mode

(OR)

Holiday mode (e.g.: Can be any one between STAGE3 ~ STAGE7)

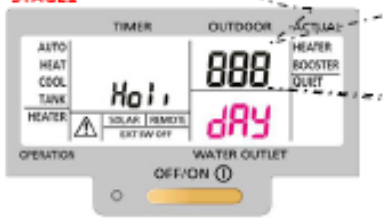
Press HOLIDAY SW

NOTE:
- ■ →LCD ON without blinking
- ■ →LCD blinking (0.5secs ON/OFF)

If Holiday mode not yet set:
Display " 1".

If Holiday mode already set:
Display latest data.

STAGE1



Data range: (1day ~ 999days) in steps of ±day1

Press SW's or to change setting (click to view setting method)

STAGE2

NOTE:
- ■ →LCD ON without blinking
- ■ →LCD blinking (0.5secs ON/OFF)

Selected new data
(For example: 5days selected)

Press SET SW to confirm new selection. (NOTE: No code transmission. Just memorize)

STAGE3

NOTE1: Suppose "5days" is SET on Sunday @ 10:00hrs.
NOTE2: Upon SET, TIMER is cancelled immediately.

New data (= latest set data)
[Store latest set in EEPROM]

When real time = Monday 0:00hrs

STAGE4

Day decrements (-1day)

When real time = Tuesday 0:00hrs

STAGE5

Day decrements (-1day)

When real time = Wednesday 0:00hrs

STAGE6

Day decrements (-1day)

This is just setting image,

Final version please refer to Product Service Manual.

How to set HOLIDAY MODE (continue)

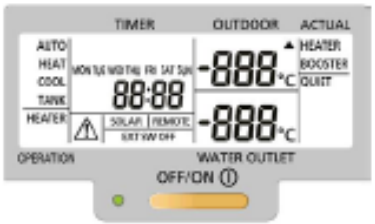
When real time = Thursday 0:00hrs

STAGE7

Day decrements (-1day)

When real time = Friday 0:00hrs

STAGE8



At Friday 0:00hrs, the following events happen.
1) Cancel & exit Holiday mode (because day=0).
2) Transmit S17 code immediately with S17→b0=1 & b1~b7 follow last settings.
3) Display current day & time.

This is just setting image,

Final version please refer to Product Service Manual.

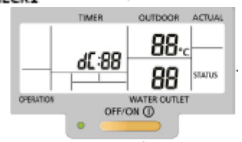
How to show POWER CONSUMPTION

18.1 Entering sequence, items & exit sequence

Normal mode or
Service mode

Press & release CHECK SW within 5secs

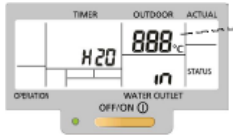
CHECK1



C11-1: Dry Concrete status

Press SEARCH / Press SEARCH

CHECK2

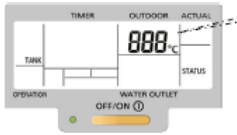


C7-1: Actual water inlet temperature from indoor

Range: (0°C ~ 127°C)

Press SEARCH / Press SEARCH

CHECK3

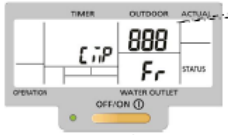


C8-1: Actual tank temperature from indoor

Range: (0°C ~ 127°C)

Press SEARCH / Press SEARCH

CHECK4

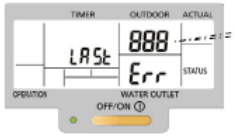


C9-1: Actual compressor frequency from indoor

Range: (0Hz ~ 255Hz)

Press SEARCH / Press SEARCH

CHECK5



C10-1: Last error history from indoor

Range: (Hxx ~ Fxx)

Press SEARCH / Press SEARCH

CHECK6

Heat mode total power consumption status

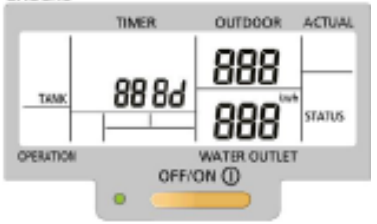
Press SEARCH / Press SEARCH

CHECK7

Cool mode total power consumption status

Press SEARCH / Press SEARCH

CHECK8



Tank mode total power consumption status

This is just setting image,

Final version please refer to Product Service Manual.

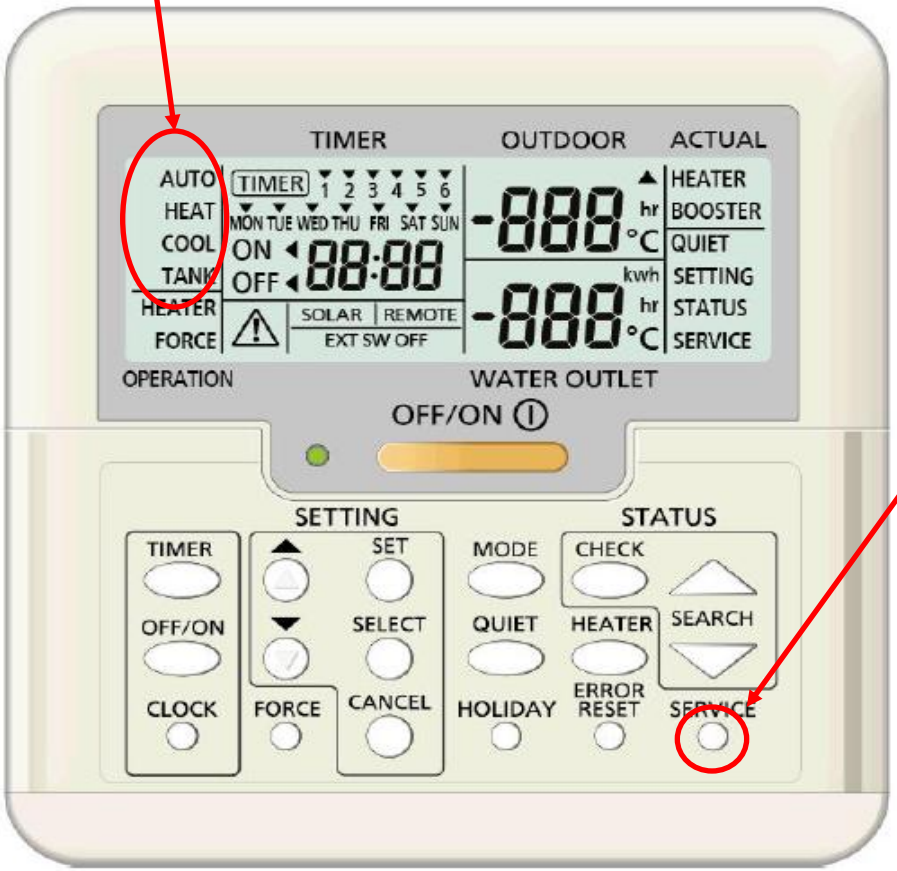
New Function (For installer)

1) Unify Heating only model into Heating&Cooling model

【Aim】 Reduce the number of model into half.

【How to】 Installer can set by special mode on Remocon when installing system, which lock cooling mode To make it into Heating only model. (The method will only show on the service manual)

After setting,「Mode」display will be changed only on LCD

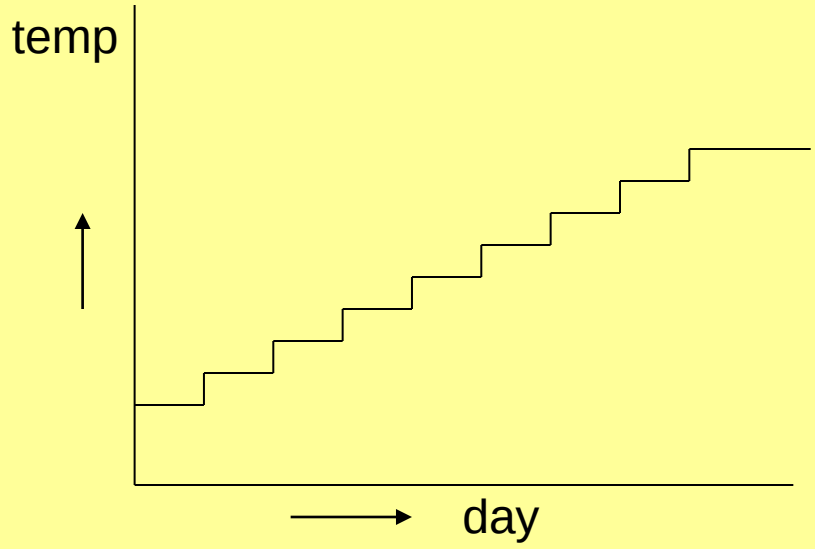


2) Floor heating concrete dry mode

【Aim】 After floor heating installation, need dry the concrete gradually(If heat quickly,the concrete may Crack.

【How to】 Set hot water's temp day by day

(Max 99 days)



How to LOCK COOL MODE **(For installer)**

5.2. Item(s) setting method

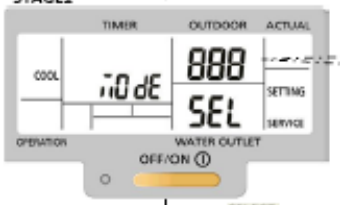
NOTE:
■ →LCD ON without blinking
■ →LCD blinking (0.5secs ON/OFF)

ITEM1: Cool mode selection

Normal mode

↓Press SW's SET & SERVICE continuously for 5secs

STAGE1



Display EEPROM data (= latest set data)

↓Press SELECT SW to change setting

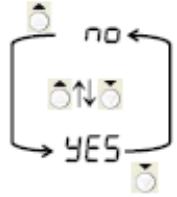
STAGE2

↓Press SW's ▲ or ▼ to change setting

STAGE3

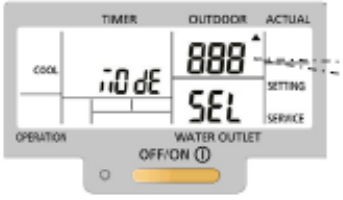
Selected new data

Sequence: (Cyclic)



↓Press SET SW to confirm new selection. (Transmit CS1 code immediately)

STAGE4



New data (= latest set data)
[Store latest set in EEPROM]

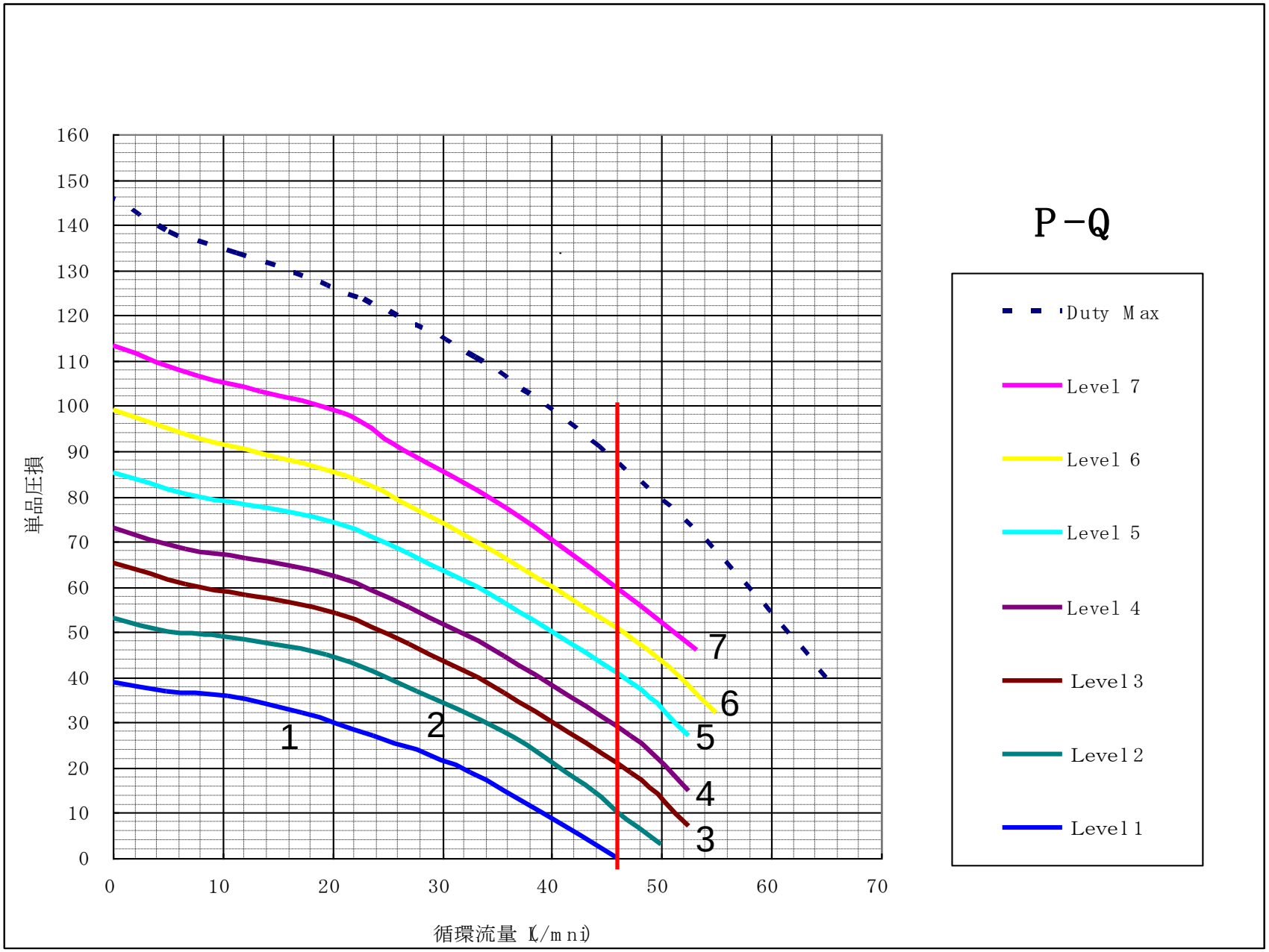
Press SELECT

This is just setting image,
Final version please refer to Product Service Manual.

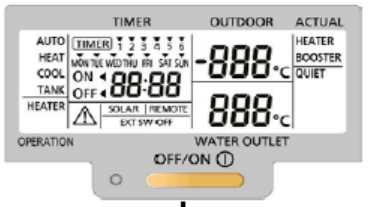
➢ At STAGE2 & STAGE3

①. Press SELECT SW or CANCEL SW, go back to STAGE1.
②. If CUSTOM setting related SW's are not pressed for 30secs continuously, exit CUSTOM settings.
③. If communication error "H76" happens, exit CUSTOM settings.

Class A Pump P-Q curve **(For installer)**



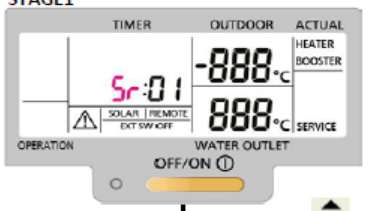
How to set speed of Class A Pump **(For installer)**



Normal mode

Press & release SERVICE SW within 10secs

STAGE1



Press SW's or to change to Sr:02 (click to view setting method)

STAGE2

Pump speed: (Range: 1~7)
Will display based on data
C23-1→ b7~b4)

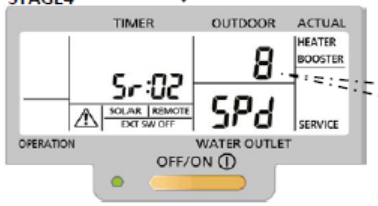
Press SET SW to confirm Sr:02 selection. (Transmit S10 code immediately)

STAGE3

Pump speed: (Range: 1~7)
Will display based on data
C23-1→ b7~b4)

When (C11-1 = 0x02)

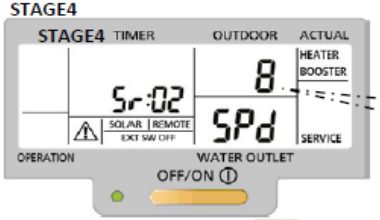
STAGE4



Pump operation is ON

Pump speed: (Range: 1~7)
Will display based on data
C23-1→ b7~b4)

STAGE4

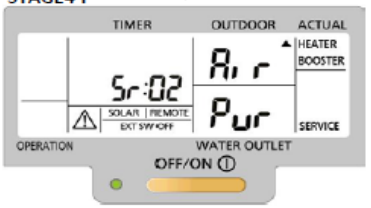


Pump operation is ON

Pump speed: (Range: 1~7)
Will display based on data
C23-1→ b7~b4)

Press FORCE SW to turn ON Air Purge function. (Transmit S20 cod

STAGE4-i



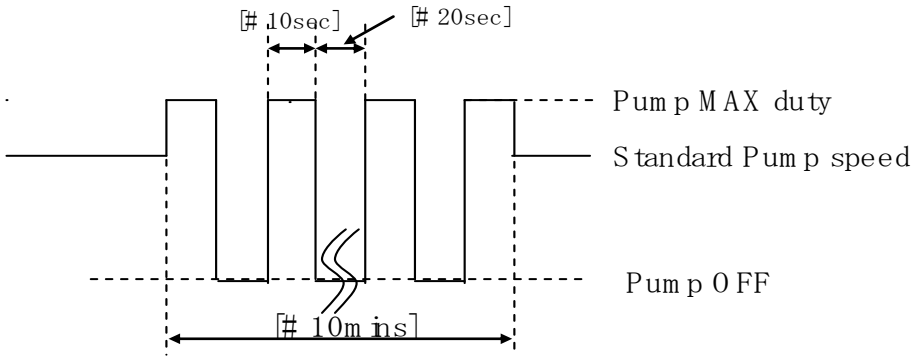
Pump operation→Air Purge function is ON

Press FORCE SW to turn OFF Air Purge function. (Transmit S20 cod

(OR)

When Data (C23-1→b0=0)

Air purge mode pattern



This is just setting image,

Final version please refer to Product Service Manual.

New deice control: HEX freezing protection

【Background】

Due to residence in market goes for high airtight & high insulation, hot water setting temperature for floor heating is demanded for lower temperature.

【Problem】

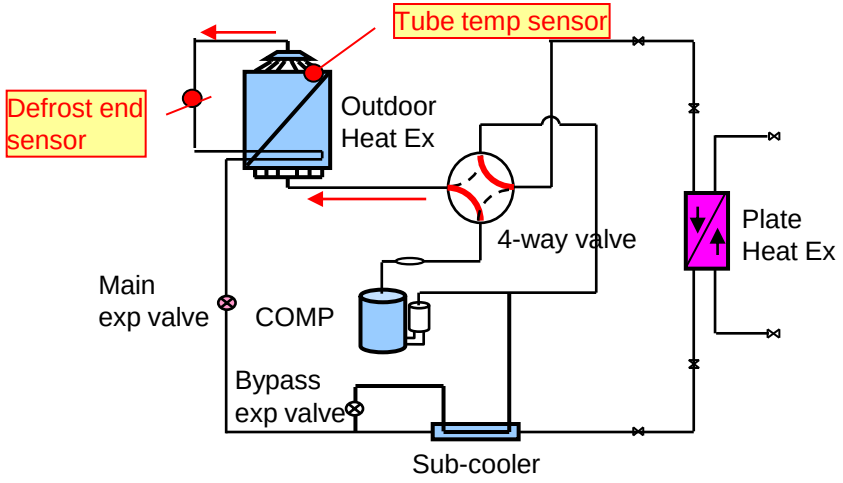
As it switches to cooling during defrost operation to run defrost, temperature of circulating hot water during defrost is cooled down.

When hot water setting temp is low, circulating hot water temp drops close to 0℃, frost happened inside water heat ex and heat exchanger will be damaged. In order to avoid this, backup heater is installed to assure constant of circulating hot water temperature.

【Countermeasure】

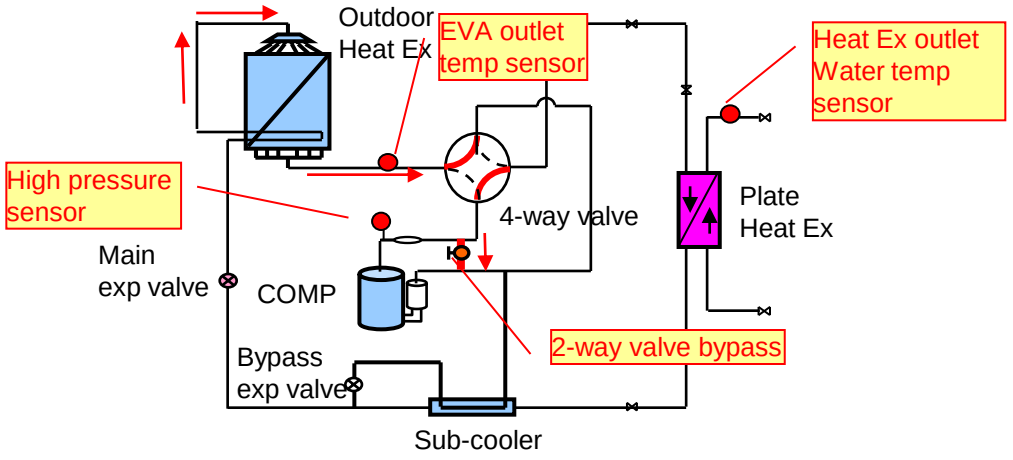
Develop defrost method that does not get heat from water heat ex to eliminate frozen risk at water heat ex.

Current　4-way valve defrost



※Circulation pump ON
Get heat from circulating water for defrost.

New　Discharge - Intake bypass heating cycle defrost



※Circulation pump OFF
Supply heat from COPM for defrost.

New deice control: HEX freezing protection

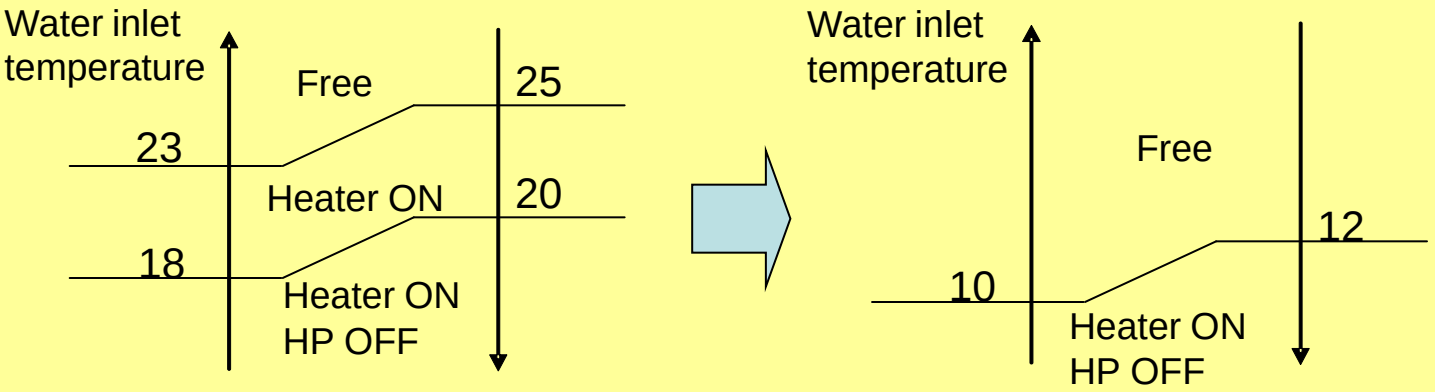
※Actual operation

- STEP 1 -
Once defrost is ON, start current 4-way valve defrost at once.

- STEP 2 -
When water temp drops during the process, switch to new defrost to melt remained frost.

【Adoption】
Sep-2013 shipment：From 16kW T-CAP2 - Model
※Later, plan to install this method in next 2 fan types models. (Same time as Class A pump)

【Merit】
- It can significantly reduce activation point of backup heater during normal operation.

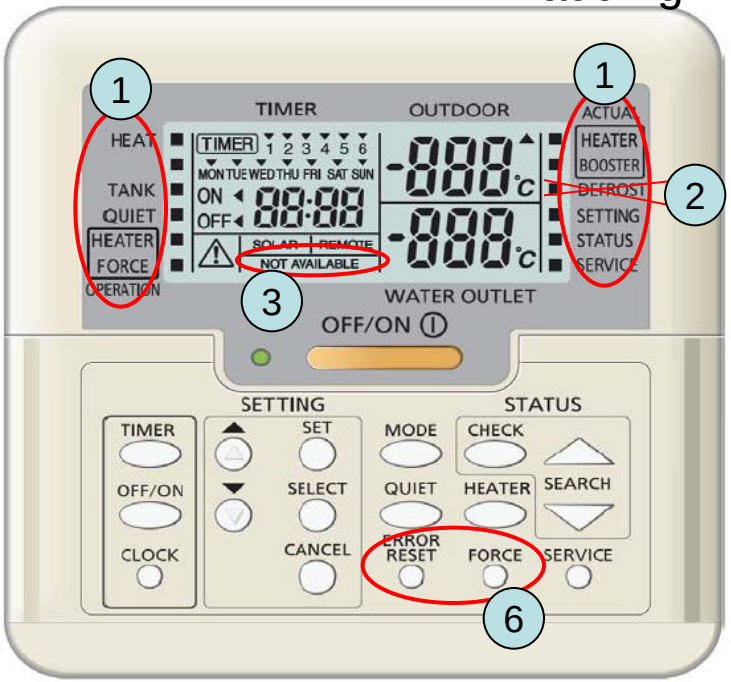


Material at hand

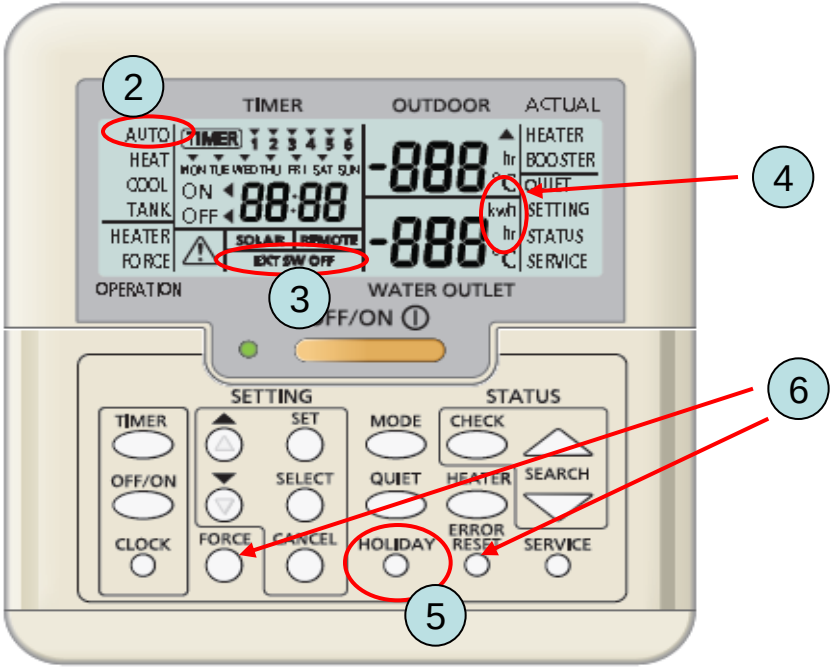
A2W 2013 new Rimocon changing point

Better user interface:1. adding Holiday mode

2. adding Power consumption



2012 current



2013 new

LCD display

1.Expand LCD display to show mode on left and right side.

2.Adding AUTO mode and remove deffrost display(using heat blink)

3. Change Not available into EXT SW OFF

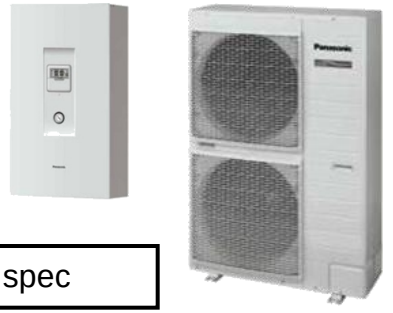
4. Adding kwh and Hr

Button:

5.Adding holiday button

6.Change force and error reset position

T-CAP model expansion

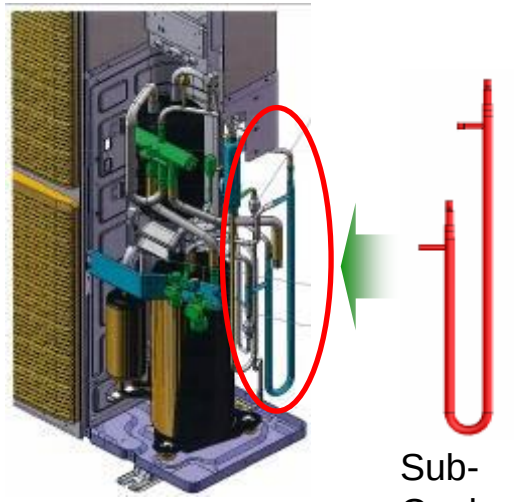
	2 0 1 2 current model (T-CAP1)				2 0 1 3 new T - CAP2(larger)
Model No.	WH-SXC09D3E5-1 WH-UX09DE5-1	WH-SXC12D6E5-1 WH-UX12DE5-1	WH-SXC09D3E8-1 WH-UX09DE8-1	WH-SXC12D9E8-1 WH-UX12DE8-1	WH-SXC16F9E8 WH-UX16FE8
					 Tenv. spec
F O B (E u r o)	1566.88	1880.46	1889.85	2047.00	2838.4
Power supply	230V 1phase		400V 3phase		400V 3phase
Heating Capa(kW)	9	12	9	12	16
Cooling Capa(kW)	7	10	7	10	12.2
E E R	3.11	2.78	3.11	2.78	2.56
C O P	4.74	4.67	4.74	4.67	4.28
ID size(mm)	892X502X353				892X502X353
OD size(mm)	1340X900X320				1340X900X320
Backup heater(kW)	3	6	3	9	9
Noise(dB)at heating	49	50	49	50	53
-15C/55C Heating Capa(mm)	9	10.5	9	11.6	15.2
Class A pump	-	-	-	-	A
Lock cooling control	-	-	-	-	Yes

BB tech. Compressor & **Sub-Cooler/EVA Bypass**

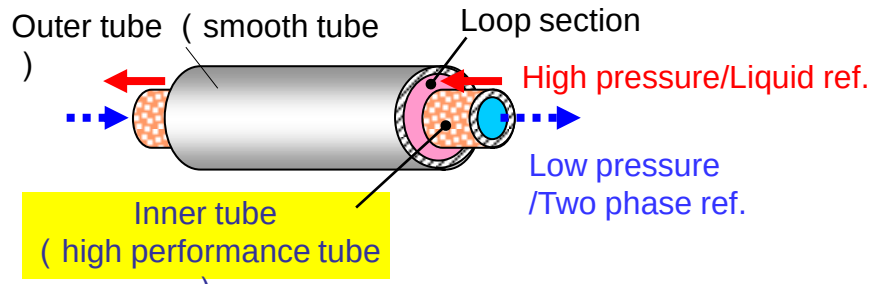
■High capacity compressor

■High temp. heating source unit
- R410A refrigerant
- High capacity compressor(42→65cc)

■Layout of outdoor piping



■Double tube heat exchanger



Optimize spec, quality and cost

Sub-Cooler/EVA Bypass:
"Refrigeration cycle apparatus and hot water heater" : 1 patent applying